CHILDHOOD LEAD POISONING IN NEW JERSEY

ANNUAL REPORT

FISCAL YEAR 2000
(July 1, 1999 – June 30, 2000)

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Chapter One

INTRODUCTION

This Annual Report on Childhood Lead Poisoning in New Jersey is submitted in compliance with a provision of the Public Law 1995, Chapter 328, which requires: "The Commissioner (of Health and Senior Services) shall issue an annual report to the Governor and the Legislature by October 1 of each year. The report shall include a summary of the lead poisoning testing and abatement program activities in the State during the preceding fiscal year and any recommendations or suggestions for legislative consideration."

The New Jersey Department of Health and Senior Services (DHSS) maintains a Childhood Lead Poisoning Surveillance System (CLPSS). Included in this system are the reporting by laboratories of the results of blood lead tests performed on children and notification of local health departments of those children with elevated blood lead. The local health departments, as required by Chapter XIII of the NJ State Sanitary Code, investigate these cases and order the abatement of any lead hazards identified. The CLPSS also includes a database that tracks the blood lead levels of individual children, and the actions taken by the local health departments in response to children reported with elevated blood lead.

This FY 2000 report is the first Annual Report to contain complete data on blood lead screening of children in New Jersey. During this year, 137,536 children were tested for lead poisoning. This includes 67,594 one and two-year-olds, the ages at which all children are required to be tested. This represents 32% of all children in New Jersey in that age group.

Of the children tested, 6,847 (5%) were found to have blood lead levels at or above 10 ug/dL, the level that the U.S. Centers for Disease Control and Prevention (CDC) has stated may cause health and/or development problems in children. And 1,309 children (1%) had blood lead levels of 20 ug/dL or greater, the level at which environmental investigation and lead hazard abatement is required under Chapter XIII.

As this is the first year that complete data on lead testing is available, it is not possible to determine trends in lead screening or the rate of lead poisoning. The FY 2000 data will provide a baseline for determining these trends in future years.

While we are pleased that we can document that so many children are being tested for lead poisoning, the percentage of children screened is lower than what we would consider acceptable. In an effort to increase the number of children screened, the DHSS is working collaboratively with the New Jersey Department of Human Services and the New Jersey Professional Review Organization. These actions are focused particularly on achieving screening of all children enrolled in Medicaid and NJ FamilyCare. These children are the highest priority because a national study has shown that 80% of all children with lead poisoning are eligible for Medicaid.

Chapter Two

WHY IS LEAD POISONING IN CHILDREN A PRIORITY FOR NEW JERSEY?

Lead is a heavy metal that has been widely used in industrial processes and consumer products. When absorbed into the human body, lead affects the blood, kidneys and nervous system. Lead's effects on the nervous system are particularly serious and can cause learning disabilities, hyperactivity, decreased hearing, mental retardation and possible death. Because their neurological system and organs are still developing, lead is particularly hazardous to children between six months and six years of age. Children who have suffered from the adverse effects of lead exposure for an extended period of time are frequently in need of special health and educational services in order to assist them to develop to their potential as productive members of society.

The primary method for lead to enter the body is the ingestion of lead containing substances. Lead was removed from gasoline in the United States in the early 1980's. This action is credited with reducing the level of lead in the air, and thereby the amount of lead inhaled by children. However, significant amounts of lead remain in the environment, where it poses a threat to children. Some common lead containing substances that are ingested or inhaled by children include:

- lead-based paint;
- dust and soil in which children play;
- tap water;
- food stored in lead soldered cans or improperly glazed pottery; and
- traditional folk remedies and cosmetics containing lead.

Today, the primary lead hazard to children comes from lead-based paint. In recognition of the danger that lead-based paint presents to children, such paint was banned for residential use in New Jersey in 1971 and nationwide in 1978. These bans have effectively reduced the risk of lead exposure for children who live in houses built after 1978, but any house built before 1978 may contain leaded paint. The highest risk for children is found in houses built before 1950, when paints contained a very high percentage of lead. More than 35% of the housing in New Jersey was built before 1950. Every county in the state has more than 10,000 housing units built before 1950. (See Table 1)

Table 1

HOUSING BUILT BEFORE 1950 IN NEW JERSEY

County	Total Housing Units	# of Units Built Pre-1950	% of Units Built Pre-1950
Atlantic	106,877	30,044	28.1%
Bergen	324,817	134,831	41.5%
Burlington	143,236	28,113	19.6%
Camden	190,145	62,907	33.1%
Cape May	85,537	24,393	28.5%
Cumberland	50,294	18,412	36.6%
Essex	298,710	155,820	52.2%
Gloucester	82,459	21,664	26.3%
Hudson	229,682	138,129	60.1%
Hunterdon	39,987	12,406	31.0%
Mercer	123,666	47,093	38.1%
Middlesex	250,174	55,677	22.3%
Monmouth	218,408	60,810	27.8%
Morris	155,745	41,622	26.7%
Ocean	219,863	26,409	12.0%
Passaic	162,512	74,715	46.0%
Salem	25,349	10,220	40.3%
Somerset	92,653	21,706	23.4%
Sussex	51,574	13,274	25.7%
Union	187,033	89,148	47.7%
Warren	36,589	14,688	40.1%
Statewide	**3,075,310**	**1,082,081**	**35.2%**

Source: 1990 U.S. Census of Housing and Population

Because lead-based paint and other lead-containing substances are present throughout the environment in New Jersey, all children in the State are at risk. Some children, however, are at particularly high risk due to exposure to high dose sources of lead in their immediate environment. These potential high dose sources include:

- leaded paint that is peeling, chipped, or otherwise in a deteriorated condition;
- Lead-contaminated dust created during removal or disturbance of leaded paint in the process of home renovation; and
- lead-contaminated dust brought into the home by adults who work in an occupation that involves lead or materials containing lead, or who engage in a hobby where lead is used.

The costs of screening for and medical treatment of lead poisoning and the removal of lead hazards in the environment are more than offset by the economic benefits resulting from reducing blood lead levels in children and from preventing the serious medical and developmental consequences of lead poisoning. The U.S. Department of Health and Human Services estimates that prevention of lead poisoning results in a savings of $1,300 in medical costs and $3,331 in special education costs per child. Based on national averages, the DHSS estimates conservatively that there are at least 6,000 children in New Jersey with blood lead levels above 20 ug/dL. For these children, the potential savings to be achieved by early detection and prevention of lead poisoning are $7.8 Million in medical costs and $20 Million in public expenditures for special education.

Reference: U.S. Department of Health and Human Services, “Strategic Plan for the Elimination of Childhood Lead Poisoning,” February 1991.

Chapter Three

SIGNIFICANT EVENTS IN FY 2000

1. Reporting of blood lead test results

Effective on July 1, 1999, all clinical laboratories licensed by the DHSS are required to report all blood lead tests. This universal reporting was authorized by Public Law 1995, chapter 328 (N.J.S.A. 26:2-137.5.b). The regulations establishing the requirement for reporting of all blood lead tests were adopted on April 6, 1998 (30 NJR 1310(c)). During FY 2000, laboratories reported the results of 149,232 blood lead tests to the DHSS.

The DHSS entered into an agreement with the Office of Information Technology (OIT) to develop and maintain the reporting system. However, OIT was not able to deliver the completed reporting system and database by the target date of June 30, 1999. OIT cited hardware compatibility problems, staff turnover, and the priority given to work ensuring that all State of New Jersey computer systems were Year 2000 compliant, as the reasons for its inability to meet the scheduled delivery date. The software for the database component of the Childhood Lead Poisoning Surveillance System (CLPSS) was delivered in September 2000.

The DHSS decided that it could not accept further delay in implementing the reporting of all blood lead tests. It therefore notified all licensed clinical laboratories that it would be enforcing the universal reporting requirements, effective July 1, 1999. Laboratories were permitted to report blood lead test results by sending computer diskettes or hard copy reports to the DHSS. In processing paper reports, DHSS staff sorted and identified elevated test results, which were immediately entered into an exiting database for processing and generating notices to local health departments. Non-elevated reports were set aside for later entry when the CLPSS database was operational. DHSS staff programmed a temporary database for the non-elevated results, and temporary date entry personnel were hired to record the reports.

The laboratory reporting component of the system is still under development. Once the electronic reporting system is in place, laboratories will be able to transfer files of blood lead test results directly into the system via secure transmission via the Internet to a dedicated e-mail address at the DHSS. Files will be encrypted to ensure the confidentiality of the records. The DHSS is working with OIT to complete this reporting system during FY 2001.

2. Screening children for lead poisoning: Medicaid

In January 1999, the United States General Accounting Office (GAO) issued a report entitled: "Lead Poisoning: Federal Health Care Programs are not Effectively Reaching At-Risk Children". That report looked at data from the 1991-94 National Health and Nutrition Examination Study (NHANES), and found that 77% of the children in the survey who had blood lead levels of 10 ug/dL or higher were eligible for enrollment in Medicaid, WIC, or some other federal health care program. However, only 20% of the children in the survey who were served by these programs had ever been screened for lead poisoning prior to their participation in NHANES. As a follow-up, GAO audited records from the Medicaid programs in 15 states (including New Jersey). New Jersey had the second highest

percentage of children screened, at 39%, of the states surveyed. While the GAO report showed that New Jersey is doing a better job of screening Medicaid-enrolled children than most other states, the 39% figure is still not acceptable.

In response, the Division of Medical Assistance and Health Services, New Jersey Department of Human Services (DHS) instructed its Medicaid Quality Assurance contractor, the New Jersey Professional Review Organization (NJPRO) to convene a Working Group on Lead Screening. The charge to the Working Group was to determine why more Medicaid children are not being screened, and to devise ways to increase the percentage of Medicaid (and NJ FamilyCare) children who are screened for lead poisoning. The working group includes representatives of the HMO's with DHS contracts and physician organizations. It identified potential barriers to lead screening of Medicaid children and possible means of addressing these barriers. The DHSS is a participant in the Working Group and its activities.

Trenton was chosen as a pilot site to gather more information and test ways of increasing the number of children screened. An audit of the records of six pediatric practices in the Trenton area in the Fall of 1999 found a that 53% of children had documentation of lead screening, but there was wide variation (34% to 86%) among the practice sites. Interviews were conducted with physicians and their staffs to determine the reasons why more children were not being screened. The Working Group reviewed these findings and developed recommendations. In response, the DHSS prepared an updated packet of materials about lead screening which was sent by Medicaid to the six practices. The HMO's agreed to follow-up up with their participating physicians to further encourage them to screen children. A follow-up audit is planned for February 2001 to determine if these actions have resulted in an increase in the percentage of children screened. If so, they will be replicated statewide by Medicaid and the HMO's.

In the meantime, DHS has sent a newsletter to all medical providers, reminding them of the requirement that they screen all Medicaid-enrolled children for lead poisoning. In addition, DHSS has made additional quantities of the lead screening packet available to Medicaid for distribution to physicians through the HMO's. The packet, prepared by the DHSS' Physicians Lead Advisory Committee (PLAC), includes a chart that summarizes the requirements of the screening law, the PLAC guidelines for follow-up, sample forms, and parent education protocols. DHS has also prepared information about the danger of lead poisoning and the need for lead screening. This information was distributed during Fall 2000 to the parents of all children enrolled in Medicaid and NJ FamilyCare.

One recommendation of the Working Group was to investigate the screening of children through the Women's, Infants, and Children's Supplemental Feeding Program (WIC). All children participating in WIC services should be income-eligible for Medicaid or NJ FamilyCare. WIC sites provide a full range of health and nutrition counseling, and one of the requirements for WIC participation is a blood test for anemia. A proposed protocol, and cost estimate, for lead screening at WIC sites has been prepared by the DHSS and forwarded to Medicaid for consideration.

3. Environmental follow-up of elevated blood lead:

New Jersey law (N.J.S.A. 24:14A) requires local health departments to investigate all cases of lead poisoning in children and to order the removal of any lead hazards found. The regulations governing these investigations are contained in Chapter XIII of the New Jersey State Sanitary Code (N.J.A.C. 8:51). Chapter XIII was first adopted in 1972, and has been amended several times since. With the assistance of a Technical Advisory Committee, a comprehensive re-write of Chapter XIII, incorporating the latest Federal and State standards for lead hazard inspection and abatement was prepared. The revised regulations were published as a proposal in the **New Jersey Register** on October 19, 1998 (30 N.J.R. 3735(a)). After review of public comments, the revised Chapter XIII was adopted by the Public Health Council on May 10, 1999, and became effective upon publication on June 7, 1999 (31N.J.R. 1515(a)).

Notifications of the revision of Chapter XIII were sent to local health departments immediately upon its publication. Because of the extent of the changes, a program was developed to train Health Officers and inspectors about their responsibilities under the revised Chapter XIII. This training was conducted at three sites during August and September 1999.

The revised Chapter XIII incorporates, for the first time, detailed requirements for parent education and case management of children with elevated blood lead. These services are usually provided as part of home visits made by public health nurses from the local health department. To help local health department staff better integrate environmental inspections with home visiting and case management, an educational program was prepared and conducted at four sites in July 2000, through the DHSS' Child Health Regional Network. The training included Health Officers, inspectors, public health nurses, and health educators, and emphasized teamwork between the inspectors and nurses in working with the families of children with lead poisoning.

4. Education of the public

Public Law 1995, chapter 328, requires the DHSS to conduct a public information campaign to inform parents of young children about the lead screening requirements. The DHSS revised its basic public information pamphlet, "Questions Parents Ask About Lead Poisoning", to include information about the lead screening law and regulations. The pamphlet was also translated into Spanish. Copies of this pamphlet are available to local health departments, community-based agencies, and health care providers for distribution to their clients.

Particular attention has been focused on the City of Newark, which has the highest number of reported cases of lead poisoning. DHSS staff have been working in collaboration with the Newark Department of Health and Human Services, the Gateway Maternal and Child Health Consortium, and the Newark Partnership for Lead-Safe Children in developing a public education campaign for Newark. A van was been donated by the Episcopal Community Development Corporation, a member of the Partnership, for use as a mobile lead poisoning education and screening venue.

Chapter Four

SCREENING FOR LEAD POISONING

Effective on July 1, 1999, State regulation requires clinical laboratories licensed by the DHSS to report the results of all blood lead tests. The methodology used for blood lead reporting, and the manner in which the DHSS maintains and analyses those reports, is described in Appendix 1. This chapter describes the data on children with blood lead test results reported in FY 2000.

During this year, 137,536 children in New Jersey were tested for lead poisoning. Table 2 shows the data on the number of children tested, by county of residence and by blood lead test result. The good news is that 95% of these children had blood lead test results less than 10 micrograms per deciliter (ug/dL), which is the "level of concern" established by CDC. On the other hand, 5% of children had results $\geq$ 10 ug/dL, and one percent had results $\geq$ 20 ug/dL (Table 3 and Figure 1). These percentages are equivalent to the national averages determined by the 1991-94 National Health and Nutrition Examination Survey (NHANES). NHANES found that 4.4% of the children examined had blood lead levels of 10 ug/dL or higher, and less than one percent had blood lead levels $\geq$ 20 ug/dL.

Essex County had the highest number and percentage of children with elevated test results (Table 3). There were 2,954 children from Essex County with blood lead levels of 10 ug/dL or more, and 624 children with blood lead levels of 20 ug/dL or more. These numbers represent 43% of all children in New Jersey with blood levels of 10 ug/dL or more, and 48% of all children with blood lead levels of 20 ug/dL or more. Twelve percent of children from Essex County had blood lead levels of 10 ug/dL or more, and 2.6% had blood lead levels of 20 ug/dL or more. These percentages were both more than double the statewide averages, and significantly higher than any other county. In three other counties, the percentage of children with blood lead levels of 10 ug/dL or more exceeded 6% - Passaic (6.9%), Cumberland (6.8%), and Salem (6.1%). Other than Essex, only in Passaic County (1.7%) did more than one percent of children tested have blood lead levels of 20 ug/dL or greater.

On the other hand, in 15 of the 21 counties, less than 4 percent of children tested had blood lead levels of 10 ug/dL or more. The lowest percentage was in Somerset County – 0.9%. However, it is important to note that **every** county had children with elevated blood lead, including children with blood lead levels $\geq$ 20 ug/dL, documenting that lead poisoning continues to be a statewide problem.

Table 2

CHILDREN WITH BLOOD TEST RESULTS REPORTED IN FY 2000 BY BLOOD LEAD LEVEL AND COUNTY OF RESIDENCE

County	Children Tested	Less than 10 ug/dL	10-14 ug/dL	15-19 ug/dL	20-44 ug/dL	>=45 ug/dL
Atlantic	4,272	4,154	75	21	21	1
Bergen	13,177	12,893	159	65	57	3
Burlington	3,486	3,411	53	17	5	0
Camden	7,513	7,232	193	52	34	2
Cape May	692	670	13	5	2	2
Cumberland	3,070	2,860	140	44	25	1
Essex	24,361	21,406	1,625	706	592	32
Gloucester	1,997	1,969	18	5	4	1
Hudson	11,642	11,249	260	70	57	6
Hunterdon	2,919	2,854	38	18	6	3
Mercer	5,605	5,300	201	55	46	3
Middlesex	10,230	9,923	200	61	42	4
Monmouth	7,160	6,955	131	46	25	3
Morris	5,951	5,871	51	15	13	1
Ocean	4,704	4,638	39	15	12	0
Passaic	11,216	10,437	428	163	175	13
Salem	676	635	30	9	2	0
Somerset	2,933	2,906	18	6	3	0
Sussex	1,458	1,434	12	6	5	1
Union	12,004	11,471	329	111	88	5
Warren	1,023	995	14	6	7	1
Unknown	1,447	1,341	74	26	5	1
TOTAL	**137,536**	**130,604**	**4,101**	**1,522**	**1,226**	**83**

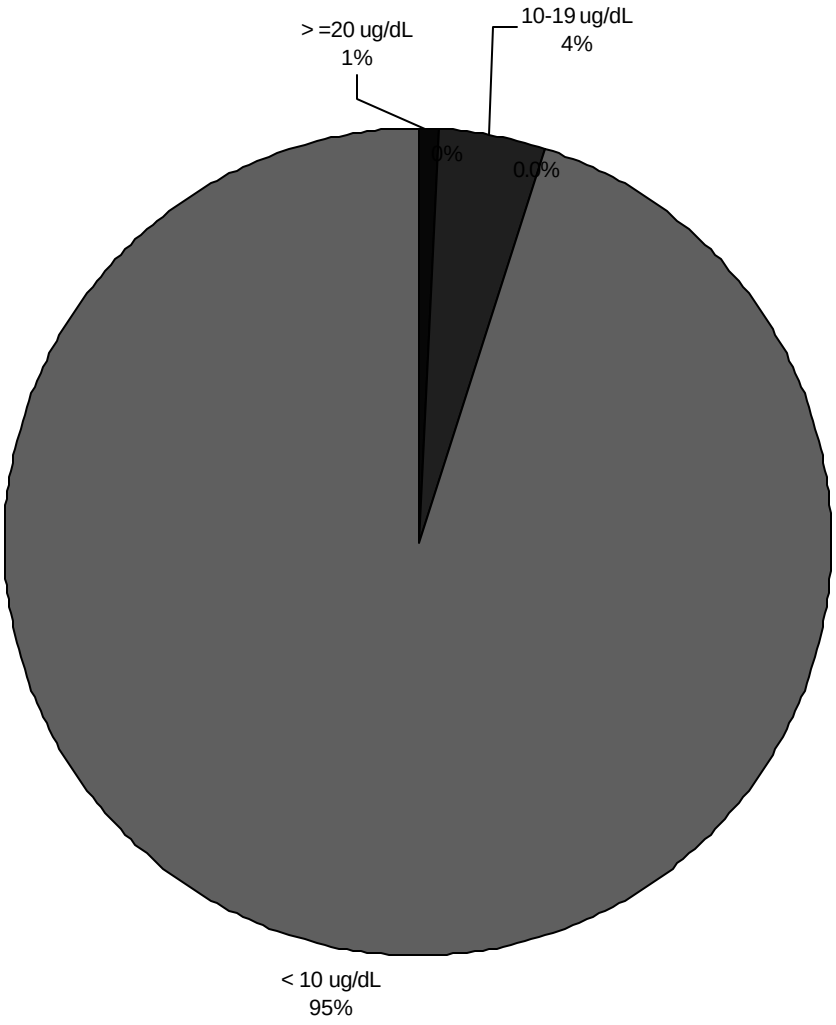
Table 3

CHILDREN WITH BLOOD TEST RESULTS REPORTED IN FY 2000
NUMBER AND PERCENT OF CHILDREN WITH ELEVATED BLOOD LEAD
BY COUNTY OF RESIDENCE

County	Children Tested	Less than 10 ug/dL	10 ug/dL or more	20 ug/dL or more	Percent >=10 ug/dL	Percent >=20 ug/dL
Atlantic	4,272	4,154	118	22	2.8%	0.5%
Bergen	13,177	12,893	283	60	2.2%	0.5%
Burlington	3,486	3,411	75	5	2.2%	0.1%
Camden	7,513	7,232	281	36	3.7%	0.5%
Cape May	692	670	22	4	3.2%	0.6%
Cumberland	3,070	2,860	210	26	6.8%	0.8%
Essex	24,361	21,406	2,954	624	12.1%	2.6%
Gloucester	1,997	1,969	28	5	1.4%	0.3%
Hudson	11,642	11,249	393	63	3.4%	0.5%
Hunterdon	2,919	2,854	65	9	2.2%	0.3%
Mercer	5,605	5,300	305	49	5.4%	0.9%
Middlesex	10,230	9,923	307	46	3.0%	0.4%
Monmouth	7,160	6,955	205	28	2.9%	0.4%
Morris	5,951	5,871	80	14	1.3%	0.2%
Ocean	4,704	4,638	66	12	1.4%	0.3%
Passaic	11,216	10,437	779	188	6.9%	1.7%
Salem	676	635	41	2	6.1%	0.3%
Somerset	2,933	2,906	27	3	0.9%	0.1%
Sussex	1,458	1,434	24	6	1.6%	0.4%
Union	12,004	11,471	533	93	4.4%	0.8%
Warren	1,023	995	28	8	2.7%	0.8%
Unknown	1,447	1,341	106	6	7.3%	0.4%
TOTAL	**137,536**	**130,604**	**6,847**	**1,309**	**5.0%**	**1.0%**

Figure 1

Children Tested
by Highest Blood Lead Level
FY 2000



Current State regulations, in accordance with federal CDC Guidelines require health care providers to screen all one and two-year-old children. This is the age at which lead poisoning is most damaging to the developing nervous system. All children should be tested for lead poisoning at or about 12 and 24 months of age. Older children, up until six years of age, are to be screened only if they have never been previously screened, or are assessed to be at high risk.

Of the children with reported blood lead tests, 67,594 were one or two-years-old. This is 32% of the estimated number of children in this age group in New Jersey. Table 4 shows the number and percentage of one and two-year-old children tested in each county, and the percentage of these children with elevated results. The percentage of one and two-year-old children screened ranged from a low of 15% in Cape May County to a high of 61% in Hunterdon County. As with all children screened, the highest percentage of children with elevated results in this age group was in Essex County.

Table 4
CHILDREN ONE AND TWO YEARS OF AGE
WITH BLOOD TEST RESULTS REPORTED IN FY 2000
BY COUNTY OF RESIDENCE

County	Number of Children*	Children tested	Percent tested	Percent < 10 ug/dL	Percent >=10 ug/dL	Percent >=20 ug/dL
Atlantic	6,661	2,126	32%	96.4%	3.6%	0.7%
Bergen	19,352	8,116	42%	98.0%	2.0%	0.4%
Burlington	10,891	2,136	20%	98.3%	1.7%	0.2%
Camden	14,891	3,597	24%	97.1%	2.9%	0.4%
Cape May	2,374	354	15%	95.8%	4.2%	0.6%
Cumberland	3,905	1,285	33%	95.1%	4.9%	0.8%
Essex	20,686	8,743	42%	89.9%	10.1%	2.7%
Gloucester	6,754	1,193	18%	98.7%	1.3%	0.3%
Hudson	15,253	4,237	28%	96.9%	3.1%	0.5%
Hunterdon	3,085	1,881	61%	98.7%	1.3%	0.2%
Mercer	8,583	2,651	31%	95.3%	4.7%	0.8%
Middlesex	18,871	5,590	30%	97.5%	2.5%	0.5%
Monmouth	15,966	3,790	24%	98.2%	1.8%	0.3%
Morris	11,145	3,979	36%	98.8%	1.2%	0.2%
Ocean	12,129	2,617	22%	98.7%	1.3%	0.2%
Passaic	14,474	5,576	39%	94.3%	5.7%	1.6%
Salem	1,545	337	22%	93.2%	6.8%	0.6%
Somerset	7,640	1,911	25%	99.3%	0.7%	0.1%
Sussex	4,331	896	21%	98.4%	1.6%	0.3%
Union	12,735	5,135	40%	95.6%	4.4%	1.0%
Warren	2,790	728	26%	98.2%	1.8%	0.5%
Unknown		689		92.9%	7.1%	0.3%
TOTAL	**214,062**	**67,594**	**32%**	**96.3%**	**3.7%**	**0.8%**

***** U.S. Census estimate as of July 1, 1999

Of the children tested, 3% were less than one year old, 50% were one-two years old, 30% were three-five years old, and 15% were six years of age or older. There were differences in blood lead levels by age. Two percent of children under one year of age, 3.8% of children one-two years of age, 7.2% of children five-six years of age, and 4.8% of children six years or older, had blood lead levels of 10 ug/dL of more (Table 5).

These results are not consistent with previous research on lead poisoning in children, which has found that blood lead levels are highest in children between 18 and 24 months of age. However, as lead screening among children older than two years of age is required only if a child has never been screened, or is assessed to be at high risk, is it likely that the higher percentages of elevated blood lead among children in the older age groups are due to a higher proportion of the older children tested being at high risk.

Table 5
CHILDREN WITH BLOOD TEST RESULTS REPORTED IN FY 2000
BY AGE AT TIME OF TEST

Age Group	BLOOD LEAD TEST RESULTS						
	<10 ug/dL	**10-14 ug/dL**	**15-19 ug/dL**	**20-44 ug/dL**	**45+ ug/dL**	**Total**	**% >10 ug/dL**
<1 Year	3,514	42	13	15	4	3,588	2.1%
1-2 Years	65,018	1,471	539	522	44	67,594	3.8%
3-5 Years	38,442	1,747	694	522	24	41,429	7.2%
≥6 Years	19,239	636	181	142	9	20,207	4.8%
Unknown	4,391	205	95	25	2	4,718	6.9%
TOTAL	**130,604**	**4.101**	**1,522**	**1,226**	**83**	**137,536**	**5.0%**

Chapter Five

ENVIRONMENTAL INVESTIGATIONS BY LOCAL HEALTH DEPARTMENTS

New Jersey law (N.J.S.A. 24:14A) requires local boards of health to investigate all reported cases of lead poisoning within their jurisdiction and to order the abatement of all lead paint hazards identified in the course of the investigation. The procedures for conducting these investigations are specified in Chapter XIII of the NJ State Sanitary Code (N.J.A.C. 8:51). The DHSS maintains a system for notifying each local health department of all children with elevated blood lead reported in its jurisdiction. This system is described in Appendix 1. This chapter presents the data on children with elevated blood lead reported to local health departments, and local health department actions in response.

There were 1,148 notices of children with elevated blood lead sent to local health departments during FY 2000. This represents all children with a reported blood lead level $\geq$ 20 ug/dL, for whom a notice had not been issued, at the same address, within the previous year. Table 6 shows the number of reports, and the actions taken in response to these reports, by county.

There were 178 cases (15.5%) closed without an investigation being performed. A case may be closed without investigation if:

- the reported elevated result was on a capillary blood sample, and a subsequent venous confirmatory test found that the child's blood lead was not elevated;
- an abatement had recently been completed on the child's residence, as a result of either a previous elevated blood lead test on the same child, or an elevated blood lead test on a sibling or other child living at the same address; or
- the child had never lived at the address given on the laboratory report, and the local health department was not able to locate the family.

Of the 970 cases for which an inspection was required, inspections were completed on 578 (60%) within FY 2000. For some additional cases, particularly those reported late in the Fiscal Year, inspections may have been completed after June 30, 2000, and are not included in this total. Where investigations were completed, local health departments found lead paint hazards in 466 properties (81%). Lead hazard abatement had been completed on 104 of these properties (22%), as of June 30, 2000. Inspections and abatements completed after June 30 will be reflected in the report for FY 2001.

Including cases where the notice of a child with elevated blood lead was sent to the local health department prior to July 1, 1999, there were a total of 1,021 investigations and 406 abatements completed during FY 2001. The distribution of these actions, by county, is shown in Table 7.

Table 6

ENVIRONMENTAL INVESTIGATION STATUS BY COUNTY – FY 2000

County	EBL Reports Sent	Invest. Required	Invest. Complete	Percent Invest. Complete	% Lead Hazards Found	# of Abatement Complete	Percent Abatement Complete
Atlantic	20	15	8	53%	63%	2	40%
Bergen	54	36	10	28%	70%	1	14%
Burlington	4	4	2	50%	100%	1	50%
Camden	26	22	10	46%	50%	0	0%
Cape May	8	7	6	86%	100%	0	0%
Cumberland	21	14	13	93%	85%	0	0%
Essex	568	496	279	56%	86%	51	21%
Gloucester	5	5	1	20%	100%	0	0%
Hudson	67	62	37	60%	89%	2	6%
Hunterdon	4	2	1	50%	100%	0	0%
Mercer	40	30	22	73%	86%	6	32%
Middlesex	31	27	17	63%	41%	4	57%
Monmouth	23	17	11	65%	73%	0	0%
Morris	15	11	2	18%	50%	0	0%
Ocean	10	10	9	90%	33%	3	100%
Passaic	159	139	115	83%	80%	29	32%
Salem	2	1	1	100%	100%	0	0%
Somerset	2	1	0	0%	0%	0	0%
Sussex	6	3	0	0%	0%	0	0%
Union	73	62	28	45%	61%	5	29%
Warren	10	6	6	100%	100%	0	0%
TOTAL	**1,148**	**970**	**578**	**60%**	**81%**	**104**	**22%**

Table 7

ENVIRONMENTAL ACTIONS PERFORMED
FY2000

COUNTY	INVESTIGATIONS COMPLETED	ABATEMENTS COMPLETED
ATLANTIC	22	14
BERGEN	15	6
BURLINGTON	3	2
CAMDEN	22	9
CAPE MAY	7	0
CUMBERLAND	33	21
ESSEX	488	153
GLOUCESTER	4	3
HUDSON	65	24
HUNTERDON	3	2
MERCER	34	19
MIDDLESEX	27	11
MONMOUTH	20	8
MORRIS	2	0
OCEAN	12	6
PASSAIC	195	98
SALEM	1	0
SOMERSET	5	0
SUSSEX	0	0
UNION	56	28
WARREN	7	2
STATEWIDE	**1021**	**406**

Eighty-one of the 114 local health departments in the State (71%) received at least one notice of a child with elevated blood lead residing within its jurisdiction. However, most of the children with elevated blood lead live within the jurisdiction of only 11 local health departments. These local health departments each received reports of 20 or more children with elevated blood lead in FY 2000, and were responsible for 73% of the reported cases (Table 8). They were also responsible for 81% of the completed investigations, 83% of all properties found to have lead hazards, and 85% of all completed hazard abatements.

Table 8

ENVIRONMENTAL INVESTIGATION STATUS REPORT – FY 2000
LOCAL HEALTH DEPARTMENTS WITH 20 OR MORE REPORTED ELEVATED BLOOD LEAD

Local Health Department	EBL Reports Sent	Invest. Required	Invest. Complete	Percent Complete	# Lead Hazards Found	% Lead Hazards Found	# of Abatements Complete	Percent Complete
Newark	374	343	161	47%	141	88%	13	9%
Paterson	117	104	99	95%	81	82%	21	26%
Irvington	79	60	45	75%	38	84%	17	45%
East Orange	64	55	50	91%	44	88%	16	36%
Jersey City	45	43	30	70%	29	97%	1	3%
Trenton	33	27	20	74%	18	90%	5	28%
Passaic City	30	30	11	37%	10	91%	7	70%
Elizabeth	26	22	19	86%	9	47%	3	33%
Camden County	26	22	10	46%	5	50%	0	0%
Middlesex Co.	23	20	16	80%	7	44%	4	57%
Bergen Co.	20	15	5	33%	3	60%	1	33%
TOTAL	**837**	**741**	**466**	**63%**	**373**	**83%**	**88**	**23%**

Complete data on the status of all environmental investigation orders issued by the DHSS in FY 2000, by local health department, is shown in Appendix 2. The data in Tables 6, 7 and 8, and Appendix 2, reflect the results of environmental investigations as reported to the DHSS by local health departments. They are accurate to the extent that local health departments make complete and timely reports to the DHSS. It is possible that additional inspections and/or abatements may have been completed, but not reported to the DHSS. Enhancements to the database will enable the DHSS to report on the status of the environmental follow-up of all children with reported elevated blood lead, regardless of the year in which the notification was issued, in the reports for FY 2001 and future years.

Appendix 1

NJDHSS Childhood Lead Poisoning Surveillance System

Effective on July 1, 1999, all clinical laboratories licensed by the DHSS are required to report all blood lead tests. This universal reporting was authorized by Public Law 1995, chapter 328 (N.J.S.A. 26:2-137.5.b). The regulations establishing the requirement for reporting of all blood lead tests were adopted on April 6, 1998 (30 NJR 1310(c)). Prior to July 1999, reporting was required only of elevated test results.

During FY 2000, laboratories were able to report blood lead test results to the DHSS on paper forms or on computer diskette. Programming work is underway to enable laboratories to transmit files of blood lead tests results via secure Internet file transfer.

All reported blood lead tests are entered into a computer database. This database records the child's name, address, birth date, and blood lead level, as well as the medical provider and laboratory performing the testing. These data are used to track childhood lead poisoning in New Jersey, both geographically and over time, and to produce reports of this information (such as this Annual Report). The database contains files of more than 650,000 blood lead test results on more than 500,000 children, dating back to the mid-1970's. Most of the records from before July 1999 are of elevated test results.

Blood lead tests results are reviewed to identify children with elevated blood lead ($\geq$ 20 ug/dL). The DHHS then notifies local health departments of children with elevated blood lead reported in their jurisdictions. This is currently done through issuing a Lead Poisoning Environmental Intervention Report. This report is issued whenever the DHSS receives a report of an elevated blood lead test on a child, unless a report form has already been issued on the same child, at the same address, within the previous 12 months. More than one form may be issued on the same child if the address shown on the laboratory report is different from that on a previous report. This is done to ensure that the local health department is aware of any changes of address made by the child and their family, and to ensure that all places where the child resides are investigated for lead hazards.

The local health department is required to report the closure or completion of an investigation and/or abatement to the DHSS, using copies of these forms. The DHSS Child and Adolescent Health Program maintains a database for tracking the status and results of lead poisoning investigations. The database contains more than 26,000 records on environmental actions taken by local health departments since the mid-1980's. When the local health department reports that an inspection has been completed and the lead hazards abated, or the case otherwise closed, the DHSS will record the case as closed. Any case of lead poisoning in a child for which the DHSS has not received a completed report from the local health department is considered to be "open". Semi-annual reports are sent to local health departments to remind them of cases still open.

Creation of Report Tables

Screening for Lead Poisoning

An analysis database was created based upon all blood lead test results that were reported to the New Jersey Department of Health and Senior Services. Blood lead test results were reported in either electronic or hardcopy format. All hardcopy reports, about 68,000, were entered into a temporary database and then combined with the electronically reported results into an analysis database. Each record contained complete information about the child and blood test result. The child's county of residence was assigned based upon mailing address zip code. If the child's address was not reported, then the zip code of the medical provider was used to assign county of residence. For those zip codes that encompassed more than one county, the zip code was arbitrarily assigned to one county. If both child and medical provider zip codes were missing or were not valid NJ zip codes, then the county of residence was assigned as unknown. Age was calculated based upon the date of the test. For those records missing date of birth, age was assigned as unknown. The tables indicating the number of children tested for lead poisoning were created based upon the first reported result for a child, which was selected by using an identifier based upon the child's full name. It was not possible to specifically identify the number of screening tests because the reason for testing was not reported.

Elevated Blood Lead Test Results

All records were selected from the database where the date of analysis was within FY 2000. Each record contained a complete set of information, that is, the child's name, date of birth, address, and blood lead test result. An analysis database was created by selecting the highest result for a child using a unique identifier that was based upon the child's full name and date of birth. Children whose highest blood lead test result was greater than or equal to 20 ug/dL were then included in the elevated blood lead test results tables. It was possible that a child had more than one elevated blood lead test result in FY 2000. However, for this report, only information related to the highest test result was used.

Environmental Activities

All records were selected from the environmental portion of the database where an Environmental Intervention Report was initiated based upon a blood lead test result performed during FY 2000. All environmental activities (investigation, abatement, and closure) contained within this report, actually occurred during FY 2000. That is, the date for any activity that occurred after June 30, 2000 was set to missing and therefore not counted within this report. The status of each investigation was assigned based upon a combination of investigation, abatement completed, and case closed dates. The modified information within this analysis database was used to create the majority of the environmental activities table. A separate analysis database was created to produce the table of all environmental activity that occurred during FY 2000, regardless of when the initiating blood lead test result was performed (Table 7). For this table, all records that contained either an investigation, abatement completed, or case closed date within FY 2000 were selected. The table was created by simply counting the number of investigations and abatements completed.